

WHAT IS CLAIMED IS:

1. A stage apparatus, comprising:

a first stage;

plural electromagnet units that generate a moving  
5 force in a predetermined direction to said first stage  
by application of electric current to an exciting coil;

application means for selectively applying the  
electric current to the exciting coil of said plural  
electromagnet units, based on a moving force and its  
10 direction to be applied to said first stage; and

control means for, upon application of the  
electric current to the exciting coil by said  
application means, determining directions of the  
electric current to be applied to respective exciting  
15 coils so as to reduce a leak magnetic field around said  
first stage.

2. The stage apparatus according to claim 1, wherein  
said application means selects electromagnet units to  
20 be driven from said plural electromagnet units, and  
determines amounts of the electric current to be  
applied to the respective selected electromagnet units,

and wherein said control means determines the  
directions of the electric current applied to the  
25 respective selected electromagnet units based on  
positions of the respective selected electromagnet  
units,

further wherein the electric current is applied,  
in the determined amounts and in the determined  
direction, to the respective selected electromagnet  
units.

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3. The stage apparatus according to claim 1, further  
comprising a second stage, holding said plural  
electromagnet units and said first stage, that moves  
within a plane,

10        wherein said plural electromagnet units generate  
a moving force to said first stage, on said second  
stage.

4. The stage apparatus according to claim 3, wherein  
15        said application means selects electromagnet units to  
be driven based on a control signal to move said second  
stage.

5. A control method for a stage apparatus, having a  
20        first stage, plural electromagnet units that generate a  
moving force in a predetermined direction to said first  
stage by application of electric current to an exciting  
coil, comprising:

          an application step of selectively applying the  
25        electric current to the exciting coil of said plural  
electromagnet units, based on a moving force and its  
direction to be applied to said first stage; and

a control step of, upon application of the electric current to the exciting coil by said application means, determining directions of the electric current to be applied to respective exciting  
5 coils so as to reduce a leak magnetic field around said first stage.

6. The control method according to claim 5, wherein at said application step, electromagnet units to be driven  
10 are selected from said plural electromagnet units, and the amounts of the electric current to be applied to the respective selected electromagnet units are determined,

and wherein at said control step, the directions  
15 of the electric current applied to the respective selected electromagnet units are determined based on positions of the respective selected electromagnet units,

further wherein the electric current is applied,  
20 in the determined amounts and in the determined directions, to the respective selected electromagnet units.

7. The method according to claim 5, wherein said stage  
25 apparatus further comprises a second stage, holding said plural electromagnet units and said first stage, that moves within a plane,

and wherein at said application step, the moving force to be applied to said first stage and its direction are determined based on a control signal to move said second stage.

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8. An exposure apparatus having the stage apparatus according to claim 1, which performs exposure processing on a photoresist substrate placed on said first stage.

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9. A device manufacturing method including the step of performing exposure processing on a substrate using the exposure apparatus according to claim 8.

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